Lake Pedder: Accounting, Environmental Decision-Making, nature and impression management

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Abstract

This paper looks at the role of accounting in a major environmental infrastructural project the flooding of Lake Pedder in Tasmania in the 1960s. This was a contentious political decision in which accounting information was important and decisive. This found that. accounting was used selectively and creatively to legitimate decision-making supporting a cost-benefit calculus. Environmental considerations were rendered invisible, marginalised and excluded from the formal evaluation. Accounting was used as an impression management tool through selectivity, bias and enhancement. It provides a rare illustration of the limitations of accounting for an infrastructural environmental decision using an in depth case study.

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> "If we can revise our attitudes towards the land under our feet, if we can accept a role of steward, and depart from the role of conqueror, if we can accept the view that man and nature are inseparable parts of the unified whole – then Tasmania can be a shining beacon in a dull, uniform, and largely artificial world."[1]
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> Olegas Truchanas 1923-1972

1. Introduction

The role of accounting in environmental decision-making is complex and intertwined with social, economic and political factors. This includes its role in financial costing. Accounting, although seen by wider unsophisticated users as a neutral, rational and technical servant of the decision-making process, can also be employed as a powerful instrument of political, social and economic advocacy (e.g. Knights and Collinson, 1987; Cooper 1995). It has, for example, been widely recognised as a rhetorical and persuasive discourse exploited by those with particular social, economic and political agendas (e.g. King and Schrems 1978; Dillard and Ruchala, 2005; Cooper and Catchpole, 2009). Accounting inputs are thus used selectively and creatively to legitimate decision-making supported by an economic cost-benefit calculus. Moreover, associated negative externalities are rendered invisible or marginalised (Jones, 2014). Accounting can, therefore, be used to omit, bias or select information to creatively portray the views of management (e.g. Jones, 2011; Brennan and Merkl-Davies, 2013). In addition, accounting has a narrow remit. For example, while traditional accounting can capture and measure financial numbers, it fails to account for natural assets (e.g. Jones, 2010b). Thus, flora, fauna, ecosystems and natural beauty have no monetary value in traditional accounting terms. They are not, therefore, included in the balance sheet.

Despite these evident weaknesses, accounting and accounting data are routinely used in both operational and strategic environmental decisions. However, perhaps surprisingly, there has

been comparatively little analysis of the use of accounting in environmental decision-making using in depth case studies. In particular, there has been little consideration of the strengths and limitations of accounting's use in financial costing especially when used to evaluate long-term strategic environmental one-off decisions. We thus have little evidence of how accounting information can be used selectively or in a biased way in such contexts. The decision in the 1960s to dam the pristine Lake Pedder to increase Tasmania's hydro-electricity generating capacity (the Lake Pedder Decision), which we discuss in this paper, provides an example of the power of accounting as an apparently rational technology for decision-making when used by a powerful and entrenched institutional advocate. The effect was to frame an environmentally devastating decision as rational and neutral through the privileging of financial concerns over arguably more precious natural and social ones.

Our article seeks to provide an insight into the use of accounting in the Lake Pedder decision in Tasmania in the late 1960s. This case is particularly important in the history of the Australian, and more widely the global, environmental movement. At the time it caused political controversy not only in Tasmania but within Australia and internationally. Indeed, the Lake Pedder decision has been credited as leading to the formation of the world's first environmental movement. This was the United Tasmanian Group formed in March 1972 as a result of protests over the damming of Lake Pedder (Stratford, 2008). In addition, the furore caused the Australian government to set up the Australian Heritage Commission and sign the World Heritage Convention (Lake Pedder 2000 Commission). However, although the Lake Pedder decision has attracted the attention of economic, social and political commentators (e.g. Bayley et al., 1972; Davis, 1972, Baidya, 1984) it has so far, to our knowledge, passed unnoticed by accounting researchers. This is perhaps, surprising as, at its heart, the Lake Pedder decision was based on accounting numbers. It was about the imperative of providing cheap electricity for the industry of Tasmania. At the centre of the decision there were, therefore, accounting calculations based on accounting estimates.

The Lake Pedder decision although taken in 1967 has obvious modern relevance, for example, in the context of dam construction itself (www.internationalrivers.org (2015)). Across the world, there are, at least, 47,000 dams. However ,as in the Lake Pedder case, these are socially, politically and economically contentious (McCully, 2004, p. 14). "Today, almost everywhere that a big dam is being proposed or built there is a community or a group of activists organising against it". For example, in the UK, there is currently a longstanding social, economic and political debate about building a barrage across the River Severn.

Advocates claim it will provide energy from renewable resources, while critics argue it will destroy a pristine and invaluable natural habitat. This problem is persistent and perennial. Two other recent cases are from Brazil and South East Asia. In Brazil, the building of the Belo Monte Dam on the Xingu River in 2011 for hydro-electric power caused severe environmental problems such as deforestation, loss of flora and fauna which are reminiscent of the Lake Pedder decision 40 years ago (BBC News, 2011). Meanwhile, in Asia, plans to build a series of dams across the Mekong in Cambodia, Laos and Thailand present serious threats to the river's ecology and the livelihood of local people (Goichet, 2015).

The contribution of this article is threefold. First, it looks at the role that accounting for financial costing played in the damming of Lake Pedder as part of the Gordon River Scheme for electricity in 1972. In particular, it contextualises accounting within the historical, economic, political and social debates of the time. Second, it investigates how accounting for financial costing was used in an advocacy role to persuade and convince people that the construction of the Gordon River hydro-electric scheme was a rational and sustainable allocation of resources. It thus shows how accounting was used as an impression management tool in a biased and selective way. Few studies have looked at major environmental infrastructural decisions in the context of accounting information. Third, it demonstrates the limitations of accounting for financial costing when it comes to decision-making and demonstrates those environmental externalities, both anthropocentric and non-anthropocentric, which fall outside the current accounting paradigm. As Houdet and Germaneau (2014, p. 64) comment: "There is a growing consensus that conventional accounting practices do not provide adequate information for properly supporting decision-making in terms of the environment". Furthermore, Gray (1991, p.23) commented: "The vast majority of the biosphere is … not covered by price (air, water, common land, habitat, species, ozone layer, etc.)". Although these limitations have been recognised in theory in the academic accounting domain for decades (e.g. Hines, 1991; Jones 2010b; Freeman and Groom 2013), they have only rarely been discussed using case study examples.

Our case study shows how several aspects of impression management were present. Conceptually, there are three potential stages to impression management. First, by completely omitting material a distorted view of a company's performance or costs and benefits can be conveyed (e.g. Beattie and Jones, 1992). Second, information that is presented can be distorted., for example, certain aspects of the information can be enhanced (Merkl-Davies and Brennan, 2011; Merkl-Davies et al., 2011). Third, there can be partial or incomplete

disclosure. This is where there is disclosure, but only of certain self-serving information or specific aspects of that information. This can be characterised as selectivity. We use this three-fold conceptual framework (i.e., omission , bias, and selectivity) to show how economic cost-benefit information in the Lake Pedder decision was used to construct a case for building the dam.

The project is based on both archival and secondary sources. The archival material consists of governmental reports and papers from the time, whilst secondary sources include articles and books that have been written about the Lake Pedder decision. In particular, we draw upon the Report of the Select Committee of the Tasmanian state government's Legislative Council on the Gordon River and Thermal Power Development in 1967 (Select Committee, 1967), the Tasmanian Hydro-Electric Commission's (hereafter THEC) report to the Tasmanian government on the same scheme (THEC, 1967) and the Australian Federal Government's Report of the Lake Pedder Committee of Enquiry in June 1973 (Committee of Enquiry, 1973a, 1973b). Also there are papers concerned with the ongoing restoration of Lake Pedder (Lake Pedder Submission, 2000). These papers of the committees of enquiry, in particular, represent the testimony of experts on the Lake Pedder Decision, while the THEC's report represents the economic cost-benefit case for the damming of the lake. These papers are a particularly useful archival source as they represent informed opinion of the time. The advocates for the damming of Lake Pedder demonstrate the potential drawbacks of a reliance upon a narrow set of traditional financial criteria. Meanwhile, the opponents of the damming of Lake Pedder rehearse, for the first time, several environmental arguments that have now become common nearly five decades later.

The rest of this paper is structured into four parts. In the next section, the background to the Lake Pedder decision is analysed. Section 3 sets out the theoretical framework of the paper and looks at research literature which shows the biased and selective use of accounting in decision-making. It then looks at several cases that look at environmental decision-making in infrastructural decisions which show the biased and selective use of accounting numbers using impression management. In section 4, we then look at the decision-making process and explore the nature of the accounting decision before looking at those factors, both anthropocentric and non-anthropocentric which accounting fails to capture. In Section 5, we then present our discussion and conclusions.

2. Background to Lake Pedder Decision

At its simplest the Lake Pedder decision can be seen as a fundamental conflict between man and nature. Lake Pedder was 242 sq kilometres in area and was situated in the Gordon River region of south west Tasmania at the heart of a wilderness area. Before the damming (McKenry, 1972, p.10) stated: "The South-Western quarter of Tasmania is one of the last three large wilderness areas remaining in the temperate regions of the world". The other two were Fiordland in New Zealand's south Island and Patagonia in Chile (Baidya, 1984). Lake Pedder was only 'discovered' in 1835 by the surveyor, John Wedge, who named it after the colony's first Chief Justice, Sir John Lewes Pedder. By 1945, Lake Pedder was receiving its first visitors who had to fly in and by 1955 Lake Pedder and the surrounding area were declared a national park – "and the general public had every reason to believe Lake Pedder would be preserved in more or less its natural state forever" (McKenry, 1972, p.12).

The growing population of Tasmania led to a need for electricity to attract and sustain industrial development. As a result during the 1950s the THEC began to explore sites. The THEC was "charged with the responsibility (and has the sole right) to generate, transmit, distribute and sell electricity in the state" (McKenry, 1972, p. 9). The sequence of key events that led to the flooding of Lake Pedder is outlined in Appendix 1. By early 1965, plans for alternative electricity generation scheme designs had been completed, and road construction into the area had commenced. One of these alternatives involved the damming of the Serpentine River which would lead eventually to the flooding of Lake Pedder.

An Inter-Departmental Committee for the South-West of the State was formed by the Government in 1965 with the responsibility foroverseeing arrangements for operations in the south-west and to protect the region from undue damage (McKenry, 1972). Despite recommendations that conservationist interests be represented, this committee comprised only the THEC's Commissioner, the Surveyor-General and representatives of the Forestry Commission and the Mines Department. In 1967, the Committee endorsed the THEC's preferred option for hydro development in the Gordon River region and its report on this option was tabled in Parliament in May 1967.

In response to heightened public concerns and lobbying activity about the imminent loss of Lake Pedder and its environs, a Select Committee of Enquiry was appointed by Tasmania's Legislative Council in June 1967. This Committee comprised seven members of the Legislative Council and it met 29 times in Hobart and once in Canberra and in Melbourne. It

heard evidence from 42 individuals representing several organisations, including the THEC and conservation, scientific and recreational interests. It reported in August and "with reluctance" endorsed the THEC's proposal without any modification (Select Committee, 1967, p. 6).

By 1972, the Edgar, Serpentine and Scotts Peaks dams were built. However, as Davis (1972, p.30) pointed out, this was a difficult decision as: "three interrelated parameters must simultaneously be considered, namely technical feasibility, economic compensation and financial arrangements". These dams meant that the original ecosystems of the lake were destroyed. There were 17 animal and plant species indigenous to the Lake Pedder region (McKenry, 1972). The original lake, buttongrass moorland, and forested Serpentine river valley were flooded. The new lake was 40 kilometres in length and the depth was 26 metres, 16 metres over the old Lake Pedder. As well as the loss of the lake, moorland and forest, the flooding of the lake endangered three species of local fish. Two of these, the swamp and the pedder galaxias faced global extinction.

Although the dams were built and the flora and fauna lost, the Lake Pedder decision remained contested. There was a wealth of opposition to the flooding. Many were concerned about the way in which the decision was made and wildlife groups and citizens were appalled at the destruction of pristine wilderness. The controversy surrounding Lake Pedder gained Australian state, Commonwealth and International importance. Baidya (1984) observed that the extensive media coverage on this environmental issue was unmatched in Australia and internationally.

In response, the Commonwealth Committee of Enquiry was appointed in 1973. It heard evidence from 47 individual witnesses and received written submissions and representations from a further 147 individuals and organisations. The Committee expressed the key issue before it thus: "we consider that the case for retaining the current scheme without alteration rests essentially on the question of cost and the argument boils down to the question: Is the restoration of Lake Pedder worth the cost involved?"[2] (Committee of Enquiry, 1973a, p. 33).

The witnesses giving evidence at the Committee of Enquiry almost without exception believed that there had been widespread bias and manipulation of data. This they believed had resulted in an incorrect decision to flood Lake Pedder.

The Committee, therefore, after evaluating the wide range of concerns expressed saw the scenario as one that was fundamentally reducible to cost-benefit considerations. It recommended a moratorium on further development to ascertain whether it would be feasible to restore Lake Pedder with the cost being borne by the Commonwealth Government. This was rejected by the Tasmanian Premier.

3. Literature Review

This paper uses impression management as a broad theoretical framework to examine the decision to flood Lake Pedder. Impression management is a broad term and includes creative accounting (Jones ,2011). It is essentially the use of information in a biased and selective way which serves the interests of the preparers, in this case the Tasmanian Higher Electric Commission (THEC) rather than the users and stakeholders (eg. Tasmanian public). Impression management includes creative financial accounting, narrative persuasion and the exclusion of non-financial information. Impression management in accounting is an attempt by management to construct an impression of financial activity which serves the interests of management rather than of their audiences (e.g. shareholders, stakeholders, the general public and media). It thus does not provide a full and unbiased view of the underlying information. It has been used widely in the study of accounting narratives and graphs (e.g. Beattie and Jones, 1992, 2010a; Brennan and Merkl-Davies, 2013; and Merkl-Davies and Brennan, 2007; 2011). There are a wide range of methods of manipulating the basic underpinning information. However, these can be broadly categorised as the omission of information, biased information and selective use of information. Accounting information can, for example, be over or understated. First, omission of information involves the complete lack of disclosure of information that would give a full and unbiased view of the underlying information. This can be used to hide material which gives an impression of performance or financial activity that is contrary to the objectives of the preparer (by Chwastiak and Young, 2003; Hollander, Pronk and Roelofsen, 2010; and Ephratt, 2011). Biased information is where the actual information is distorted so that it gives a biased view of the information conveyed. (Bowen et al., 2005). The selective use of information is where the choice of accounting information (e.g. costs and benefits, earning numbers) or rhetorical explanations are deliberately chosen to convey a particular message. However, the information itself is not distorted. Below we discuss the biased and selective use of accounting in decision-making in general and in environmental infrastructural decisions, in particular.

i) The biased and selective use of accounting in decision-making.

Critical theorists have long recognised the power of accounting as an agent in constructing a particular reality. Accounting is not a neutral, technical craft that reveals and makes visible some underlying truth (Hopwood, 1992, p. 142). "Accounting can be implicated in the active construction and transformation of both organisational and social institutions, and the economic truths that are associated with them". It plays a selective constructing and shaping role that allows one particular way of understanding to emerge to the silent exclusion of others (e.g. Power 1994, Cooper 1995, Brown 2009, Mårtensson 2009). In Tinker's (1991, p. 302) words, dominant parties exercise discretionary power over accounting numbers and accounting processes to make the world in accord with their own political agendas.

Accounting is able to exercise its partisan rhetorical force because it holds a position of ideological dominance and authority (Power, 1994; Cooper, 1995). Accounting creates an impression of technical rationality and objectivity by creating a veneer of precision and exactness that bears a problematic relationship to the often vague and ambiguous underlying phenomena that it transforms (Hopwood, 1992; Mårtensson, 2009). The apparent rigour and elaborate nature of accounting rules (Hopwood, 1992) further reinforces the sanctity of the resultant calculation. As such, accounting calculation is often not challenged (Neu and Taylor, 1996). However, both the inputs and the calculation process are likely to reflect partisan bias (Lehman and Tinker, 1987; Driesen, 2006; Mårtensson, 2009). Some items are emphasised, others are deemphasised, and the judgement that underpins so much of accounting's apparent rational calculation serves the biased interests of those dominant in the process. The private nature of the calculation also makes such choices hard for outsiders to discern and question (Neu and Taylor, 1996).

In the context of environmental regulation in the US, Driesen (2006) concluded that economic cost-benefit analysis was both biased and anti-environmental. He noted selectivity in the production and quantification of data and in the manipulation of discount rates. His conclusion was that an economic imperative was instrumental in achieving a relaxation of the stringency of environmental regulation and/or a reduction of its scope in areas such as asbestos use, emission controls, environmental protection and water pollution.

As a result of accounting's ideological dominance and its economic rhetorical force, accounting has been exploited in a political advocacy role to bolster economic, social and political arguments. Accounting has been implicated in decisions to privatise, close,

downsize and restructure operations. For example, Arnold and Cooper (1999) identified accounting as an advocate in the privatisation of Medway Ports in the UK. Accounting was also used in the decision of the UK's National Coal Board to implement selective mine closures during the 1980s (e.g. Richardson, 1987; Berry et al, 1988; Morgan, 1988: Cooper, 1992). Meanwhile, Findlay (1987) and Knights and Collinson (1987) highlighted how accounting was used to close company subsidiaries. Economic cost-benefit analysis used to underpin supposedly rational choices between alternatives has been particularly criticised for its advocacy role in providing "objective" support for political and military spending decisions (e.g. King and Schrems 1978, Dillard and Ruchala 2005, Chwastiak 1996, 2008, Cooper and Catchpole, 2009). There has been, however, little accounting research that has investigated the way in which omission, bias and selectivity can be used in environmental damaging infrastructural decisions. Our case study seeks to address this.

ii) Environmental Infrastructure Case Studies

Surprisingly few studies have focused on the way in which financial costing has been used in the context of major infrastructural decisions that impact the natural environment. There has been an extensive literature on strategic management accounting and cost/sustainability accounting. The literature on strategic management accounting, however, (e.g. Simons, 1991; Yi and Tayles, 2009; Carr, Kolehmainen and Mitchell 2010; ; Ballou, Casey, Grenier and Heitger 2012 and Herzig, Viere, Schaltegger and Burritt, 2012) has focused on issues such as accounting choice, capital investment, control systems or eco-efficiency rather than on infrastructural and environmental decision-making. The cost/ sustainability literature (e.g. Bebbington and Gray, 2001; Lamberton, 2000: Steen, 1997; Antheaume, 2004 and Herbohn, 2005) looks at case studies of individual companies. They do try to take into account externalities, but not in an infrastructural decision-making context. Given the focus of this paper on the role of accounting in a major infrastructural decision-making context, we do not consider the strategic management accounting or full cost/sustainability accounting literature further. We therefore consider below only those few studies which have looked at economic cost-benefit analysis in the environmental context of a major infrastructural decision using impression management.

Churchman (1971) showed the potentiality of the selective use of accounting numbers to construct differing accounting realities when evaluating the economic cost- benefit of a third London airport.[3] Samiolo's (2012) examination of economic cost-benefit, conducted as part

of a large Italian public sector project, the long-debated scheme for flood protection in Venice, is particularly pertinent to the Lake Pedder case. This was carried out as part of the European Union's environmental impact assessment (Samiolo, 2012, p.11).: "What was supposed to be a neutral representation of costs, benefits and environmental impacts remained closely entangled with the administrative interventions which it was expected to assess." Different numbers and statistics were used by different interested parties to mobilise different agendas. Three different project alternatives were used: do nothing; mobile barriers; and a combination of local defences and diffuse measures. Biodiversity costs were not particularly prominent, but intangible and non-monetary benefits of the barriers such as preserving Venice's heritage for future generations, avoiding social costs and the costs of keeping the city dry and safe were considered. Finally, Rahaman, Lawrence and Roper (2004) used a case study approach to investigate the social and environmental accounting at the Volta River Authority (1985-1995). In this case, however, the concern was not as at Lake Pedder or Venice with the environmental aspects of the infrastructural decision itself, but with the subsequent disclosure of social and environmental information in the VRA's annual reports. This disclosure was found to be driven by the need to comply with the funding requirements of the World Bank.

Impression management based on the presentation of a biased and selective financial case was at the heart of the THEC's argument to flood Lake Pedder and it is to the specifics of that decision making process that discussion now turns. The rest of this article explores the economic, social and political arguments that underpinned the decision to dam Lake Pedder. In particular, we look at the arguments presented in the Committee of Enquiry Papers of 1973. We focus on the use of accounting numbers and the failure to take into account environmental externalities.

4. The basis of the decision to flood Lake Pedder

We now look at the THEC report to the Premier of Tasmania on the Gordon River development and the proposals for the thermal power station which led to the damming of

Lake Pedder. We then investigate the arguments of those who criticised the decision-making process.

4.1 The THEC's case

The case advocating the scheme that would result in the flooding of Lake Pedder was primarily advanced by the THEC through its report to the Premier of Tasmania, in his role as the Minister administering the Tasmanian Hydro-Electric Commission Act, in May 1967 (THEC, 1967). From the outset, the case was framed in terms of economic cost-benefit imperatives. The report was prefaced by an introductory comment about hitherto unexperienced demand for supply of power due to industrial expansion throughout the state. This was described as "a gratifying indication of the progress of the State [which] holds rich promise for the future" (THEC, 1967, p. 5). In Cooper's (1995) terms it would be ungrammatical to suggest that that lack of progress and loss of promise are to be preferred to the promising way forward. The THEC cautioned that "industries are likely to be established or to expand *only* if the price of electricity is relatively low" (THEC, 1967, p. 12, emphasis added). At the same time, attention was drawn to "severe strains upon human, material and financial resources available" and to a shortage of capital and loan funds (THEC, 1967, p.5) setting the context of a constrained fiscal environment.

The THEC's report recommended construction of a hydro-electric scheme on the Gordon River along with a thermal development on the Tamar River in North Tasmania. It asserted that after consideration of various alternatives, this scheme provided the only way in which forecast load could be met within the constrained capital environment. The THEC report included a letter from Sir Alexander Gibb and Partners, a UK firm of consulting engineers engaged by the THEC, which endorses the THEC's preferred option, rejecting other possible options such as oil, coal and nuclear, on the grounds of either technical uncertainties or lack of economic competitiveness (THEC, 1967, p. 8).

The THEC's report first overviewed the capacity of existing electricity generation schemes. This was followed by a four-page detailed and quantitative analysis of forecast demand for electricity with the conclusion that provision must be made for further expansion (THEC, 1967, p. 14). There was a discussion of alternative options: conventional thermal power, natural gas (which was not available in Tasmania) and nuclear energy. A traditional thermal option was rejected due to uncertainty regarding coal reserves; natural gas because it was

unavailable and uneconomic; and nuclear because it was uneconomic. Nuclear was the only option for which some cost data were given, with capital cost put at $57M, annual costs at $7.4M and an average cost per kilowatt hour of 0.55 cents (THEC, 1967, p. 17).

In Section 4 of the report, the THEC recommended development on the Gordon and the Tamar Rivers. Presenting the effects of the scheme in Section 5, the THEC claimed that the "whole of the recommended hydro-electric power development lies in a desolate region" with the principal consequence being "the flooding of substantial areas of button grass plain in the upper lengths of the Gordon and Serpentine Rivers" (THEC, 1967, p. 25), which was described as "for the most part marshy and covered with scrub" (THEC, 1967, p. 26). The "submerging" of Lake Pedder is acknowledged; the loss of the beach used as a landing strip balanced against the positive assertion that "it will no longer be necessary for bushwalkers to make use of aircraft to reach Lake Pedder, and whatever may be the virtues of the existing lake, the new one will also be a great attraction with the surrounding backdrop of mountains to cast their reflections upon the surface" (THEC, 1967, p. 26). Further, the THEC concluded, based on a brief survey it commissioned, that "there would be no significant destruction of rare species of flora or fauna" (THEC, 1967, p.26).

The remainder of the report presented some financial data about the recommended scheme. The Gordon scheme would require an outlay of $84m, with annual costs of $5m, providing electricity at 0.38 cents per kilowatt hour. Although the thermal option on the Tamar was more costly per kilowatt hour, the combined scheme was expected to provide electricity at a cost of 0.44 cents per kilowatt hour, which compared favourably with the only other costed alternative, the nuclear option, at 0.55 cents.

The Legislative Council's Select Committee in 1967 considered whether any modification of the THEC's recommended scheme was practicable or desirable. The key alternative was a pumping proposal that would divert water through a tunnel, reducing the impact on Lake Pedder. This proposal was rejected by the Committee on the basis of evidence given by the THEC. It claimed that the modification could result in "unsightly and unpleasant mudflats"

and that the additional capital cost of between $5 - $8m would increase the cost from 0.38 to 0.41 cents per kilowatt hour (Select Committee, 1967, p. 6). The Committee, thus, concluded that no modification was practicable or desirable.

The THEC was also forced to make its case in the media in response to advertisements placed by the Lake Pedder Action Committee and The United Tasmania Group in 1972 claiming that Lake Pedder could and should be saved. In its first advertisement, the THEC referred to the 1967 Select Committee Enquiry claiming that all alternative Gordon River schemes had been put to the committee and their "relative economics" considered at length (THEC, 1972, in McKenry, 1972, p. 32). The THEC labelled any scheme to restore Lake Pedder as expensive, resulting in a loss to the state of at least $26m. In a subsequent advertisement, the THEC's Commissioner highlighted the point that any proposal to modify the Gordon River scheme would result in "heavy increased costs" and to "meet such costs a considerable **increase in tariff charges for electricity** would become necessary" (in McKenry, 1972, p. 32, emphasis in original).

4.2. Criticism of the decision-making process

Many of those who presented evidence to both committees of enquiry on Lake Pedder believed the decision-making process which led to the flooding of Lake Pedder was deeply flawed (e.g. Bonitcha, Shoebridge, Hutchinsen to the Committee of Enquiry, 1973b). This was both in terms of the political process, but also in the economic/accounting sphere. There was selective consideration of only technical, economic and legal considerations. There were eight main arguments put forward by those who criticised the process at the time and these will now be discussed in detail below:inadequate and flawed political process; lack of impact study assessments; lack of disclosure; lack of consideration of alternative scenarios; a narrow set of financial criteria that was, in any case manipulated; selective use of costs and benefits; lack of a sensitivity analysis; and an inability to take into account non-financial factors. From an accounting perspective, there was thus selective disclosure and a lack of consideration of environmental externalities. These criticisms are outlined below and in Section 4.3 with reference to the comments of those giving testimony before the Lake Pedder Committee of Enquiry held in 1973. There is then a consideration of arguments put forward by a minority of the witnesses who supported the flooding of Lake Pedder (see arguments in favour of flooding Lake Pedder at the end of this section in 4.3).

Now each of the eight main arguments will be explored.

i) Inadequate and flawed political process.

There was a general feeling that the political process was flawed, inadequate and, in some way, the decision was prejudged. Davis (1972) commented that the Lake Pedder debate was an example of decision-making in a vacuum". Bonitcha from the South West Committee (to the Committee of Enquiry, 1973b, p. 194) stated that "moreover the committee faced a powerful propaganda movement in the Hydro Electric Commission with its unlimited resources to present the case for the development". Indeed, McKenry (1972, p.9) comments: "although charged to make a determination of the interests of the state in considering new power developments the H.E.C. has never seen fit to employ geographers, ecologists or specialists from other disciplines not directly related to the technical, economic or legal aspects of power production." Environmental considerations were thus excluded. Nor was the THEC subject to direct political regulation. It was an autonomous, semi-governmental authority.

The political enquiry was also criticised by Shoebridge (Committee of Enquiry, 1973b, p.196). He made a series of critical points. Along with several other commentators (e.g. Crosswaite to the Committee of Enquiry, 1973b, p. 287) he pointed out that there was no independent evaluation of the project by any statutory authority. In addition, there was a narrow parliamentary remit with: "No obligation of a parliament to consider any other factor than that put forward by the Hydro Electric Commission" (Shoebridge to the Committee of Enquiry, 1973b, p. 196). Conservation interests were excluded from the decision-making process. He considered the final decision as almost a *fait accompli.* McKenry (1972, p.11) agreed. "By offering Parliament a choice of one, without mention of possible alternatives, it apparently has been the H.E.C's intention to present parliament with a 'fait accompli', thereby reducing that body to a secondary role". Hutchinsen (to the Committee of Enquiry, 1973b) also pointed out that Lake Pedder had been a dedicated national park, but was undedicated before its environmental resource use was even cursorily examined.
The THEC was, therefore, accused of acting as a *de facto* government. Jones (Committee of Enquiry, 1973b, p. 150) stated that improper, although not illegal, things happened. An example was perhaps the deliverance of a petition that was not allowed to be formally

presented (except for the front page), because it breached Parliamentary rules (Hodgman to the Committee of Enquiry, 1973b). Although arguably a technically correct and justifiable decision it does not convey an overarching impression of fairness and due process. Moreover, financial and economic considerations were selectively privileged over environmental ones. The report to parliament read "in parts, like a sales brochure maximizing good points and minimising, misrepresenting or totally omitting bad points" (McKenry, 1972, p. 20). The published Lake Pedder Enquiry Report agreed stating that there "were attempts to limit public knowledge and discussion" (1973, p.11). This was consistent more with an attempt to manage impressions than to present a full and unbiased view.

ii) Lack of impact study assessments

There was widespread concern about the lack of an environmental impact study. Hutchinson, Investigations Officer of the Victoria National Parks service was particularly critical (to the Committee of Enquiry, 1973b, p. 403) "I understand no impact statement on the use of the Lake Pedder National Park for hydro-electric purposes has been prepared and examined by independent investigators". He felt that there was a need for prior biological and geological knowledge: "an inventory of the natural resources of the area, in order to determine where not to do certain things" (to the Committee of Enquiry, 1973b, p. 404). Again environmental considerations were selectively excluded. This point was echoed by Shoebridge (to the Committee of Enquiry, 1973b). In his view, instead of a comprehensive ecological survey, there was a small "spasmodic ecological survey". Jones pointed out there had "never been effective biological investigations carried out in Lake Pedder" (to the Committee of Enquiry, 1973b, p. 152). Those investigations that occurred focussed only on fauna, in a two-and-a-half week visit, without a botanist. There was certainly no consideration at all in financial terms of Lake Pedder's biodiversity.

iii) Lack of disclosure by THEC

There was a general feeling of a lack of transparency in the decision-making process. Thus, Davis (to the Committee of Enquiry, 1973b) bemoaned the secrecy in governmental circles with no public release of detailed costs and benefits. "It is fair to comment that 5 $^{1}/_{2}$ years after the project has been approved we still have no public release of detailed costs and benefits relating to the scheme" (Davis to the Committee of Enquiry, 1973b, p.82). Jones (Committee of Enquiry, 1973b, p. 146) concurred: "secrecy in the process of government had reached a high order". There was a feeling that "the H.E.C. did much to keep the implicit threat to Lake Pedder secret throughout the planning stages. There was thus a high level of selectivity in the information released. This selective disclosure was impression management. Virtually no information was volunteered to the public and when information was solicited by individuals or organizations on Lake Pedder, vague, non-committal and sometimes misleading replies were given" (McKenry, 1972, p.19). Jones outlined many cases where information had been requested, but denied; summarising the situation as "no technical data has ever been produced to substantiate bald claims of costs in a way which could reveal underlying assumptions. Thus it was not possible to calculate the actual additional cost required to save Lake Pedder" (Jones to the Committee of Enquiry, 1973b, p.153). Further, the 1973 Committee of Enquiry was denied access by the THEC to detailed information about matters such as demand forecasts, and the costs and benefits of alternative approaches, and was unable to assess these with any accuracy (Committee of Enquiry, 1973a, p. 39).

iv) *Lack of consideration of alternative scenarios*

Several commentators to the Committee of Enquiry were concerned that alternatives were not fully considered or costed (e.g. Davis, Hodgman, Vallance, and Payne). There was thus biased and selective disclosure. Hodgman, a Member of Parliament and a member of the 1967 Legislative Council Select Committee, commented: "speaking for myself I had a distinct impression that all possible alternatives had not been placed before our committee" (to the Committee of Enquiry, 1973b, p. 119). McKenry (1972, p.11) confirmed this: "The H.E.C. disclosed in evidence that a number of alternative schemes had been formulated and costed, and that some of these avoided the flooding of Lake Pedder. This information had never been made public". He believed that while the evidence supporting the THEC's recommendation had been unambiguous, complete and precise, that relating to the alternatives "appeared ill-prepared, ambiguous and confused" and was contained within "a cobweb of irrelevancies" (McKenry, 1972, p.17). Indeed, the Committee of Enquiry (1973a,

p. 39) commented on the partial nature of the disclosure: "The costs and benefits associated with the alternatives …… cannot be assessed with accuracy on the basis of the limited data available to the Committee. Uncertainties exist in a number of areas." For alternatives 1 and 2, "it is not possible to estimate the cost of capital works or their precise environmental or aesthetic effects". Further the committee was not able to gain from the THEC detailed information about the present rate of power demand in Tasmania and how existing facilities would meet this demand" (Committee of Enquiry, 1973a, p.39). Davidson (1971, p. 76) referred to calculations by Mathias that compared hydro-electricity and all-thermal plants. "Discounting at an interest rate of 5 per cent Mathias calculated that the present value of an all-thermal plant would be $16 million dollars lower than hydro development, and that the present value of the Gordon scheme followed by all-thermal plant would be $2 million dollars lower than the Gordon scheme followed by all-hydro development." This was summed up by Davis (1973, p.33): "First, we should note that only one proposal was submitted and that no competing alternatives were spelt out in any detail. There was discussion of the thermal and nuclear alternatives, but many of the major assumptions on which these proposals were costed and rejected were not comprehensively explained."

iv) Narrow financial criteria, such as the discount rate, which were manipulated

There was much concern that the only considerations taken into account were narrowly financial and that these figures were creatively impression managed by the Hydro Electric Commission. Davis (1972) refers to the fact that their implicit assumption was that cheap power for Tasmania would attract industry and boost employment (1972, p.36). Mosley concurred stating that in Tasmania, a state with few resources, there was a tendency to "favour least costly development alternatives, in spite of any loss of unique national scenery" (Committee of Enquiry, p. 349). Davis (1972, p.27), commented: "apart from brief analytical discussions of the THEC's cost estimates with external bodies such as the State Electricity Commission of Victoria, no detailed attempt was made to unravel the unit costs or operational characteristics of the Gordon proposals or the basic structures involved in any measures to save Lake Pedder. There was, for example, no consideration of storage regulation or systems operations" (Davis, 1972). Jones (Committee of Enquiry, p. 150) commented: "No technical data has ever been provided to substantiate bold claims of costs in a way which could reveal underlying assumptions".

Davis felt that the development objective was cheap hydro-electric power, but there was no evaluation of the alternatives and that it was not sufficient to look at engineering values alone (1972, p. 85). There was thus only partial disclosure of information. Furthermore, Davis believed the information was distorted. He pointed out that, in his view, the discount rate had been manipulated downwards: "I am by no means persuaded that the rate which the THEC uses is high enough and I think I could in fact produce a considerable amount of evidence by other economists to support this point of view. It is noticeable that recently both the U.S.A. and U.K. debated the matter and rates somewhere near 10% were settled upon. The THEC tends to use the weighted cost of capital available locally and talks about the rate of 5.5% in the Lake Pedder Case" (Committee of Enquiry, 1973b, p.92). This was after adjusting for inflation. The basis for discounting water resource planning in Australia was the long-term bond rate. Davis (1972, pp. 34, 75) pointed out this was inappropriate with a better measure being the weighted cost of capital adjusted for community opportunity cost and time. He pointed out that higher discount rates favour projects with relatively lower initial outlays, but higher annual operating costs, as is the case with thermal and nuclear projects. Conversely, lower discount rates, such as those chosen by the THEC, favour the production of hydro-electricity as this involves higher initial outlays, but lower recurrent costs. Recall in the THEC's case above, nuclear, the only other costed alternative, compared unfavourably with the hydro scheme, but this may have been an artefact of choosing a lower discount rate. Davidson (1971, p. 76) also argued that a fully thermal option would have been the favoured alternative had a more realistic discount rate been used. "If an interest of 5 per cent had been used [instead of the 9.5% actually used] the net present value of an all thermal plant would have been $16 million dollars less than a hydro scheme. A different decision would have been made" (Davidson, 1971, p.76).

Hill and St John, Committee of Enquiry, (1973b, p.92) summed up these arguments: "Would it be fair to say that these assessments have been made on a discount rate that is, if anything, at the bottom of the scale? You would certainly not use a lower rate and you could well use a higher rate. And if you used a higher rate, then thermal would be more competitive" (Hill) and "A higher capital investment in the hydro electric and a lower discount rate surely favours the hydro electric, doesn't it?" (St. John). In addition, St. John pointed out that whereas a hydro-electric development is made for 70 years or longer, thermal development is only 30 years. As a result, thermal development could take into account technical calculations

to improve performance over time. These commentators thus saw the THEC as deliberately distorting the discount rate.

Interestingly, in hindsight this view has been vindicated. Andrew Blaker in the Pedder 2000 submission, for example, argued that "The HEC used an interest rate of 9.5% and an inflation rate of 3.5% to arrive at a real discount rate of 6% in its submission. This choice of figures is not supportable. The current average interest rate paid by the THEC is above 11%. The inflation rate over recent years has been 2-3%. This yields a real interest rate of around 9%"(Lake Pedder 2000 Submission, Andrew Blaker, p. 11).

v) Selective use of costs and benefits.

There was concern that the whole process of "hydro-industrialisation" had not been fully evaluated. Davis (Committee of Enquiry, 1973b), for example, commented: "Now it may well be that this is a valid strategy, but to the best of my knowledge, there has never been any comprehensive attempt to measure the costs and benefits accruing from hydro-industrialisation and there <u>are</u> costs as well as benefits!" He pointed out that the Tasmanian government budget was $150-200 million a year and $40-45 million a year was being invested in hydroelectricity without any investigation of either the structural impacts on the development of the economy or any associated opportunity costs.

The Tasmania Conservation Trust wrote to the Premier pointing out the supposed bias and unrealistic cost estimates in the THEC's proposals (McKenry, 1972, p.22). In addition, Davis (1972, p. 32) maintained that the cost-benefit analysis used was rudimentary, lacked an interdisciplinary approach and had many errors and inconsistencies in application. For example, the Commission claimed in 1967 that its inflation rate 1968-1972 was fairly generous. Indeed, it appears to have been 6% (Davies, 1972, p.34). Davis (Committee of Enquiry, 1973b, p.92) however, thought that: "There is fair evidence that the Commission's estimate of this in the Gordon scheme was far too low". Again there was evidence of bias systematic selectivity in disclosure.

vi) Lack of a Sensitivity Analysis

There was also criticism that the THEC did not carry out any sensitivity analysis on its costs and benefits using, for example, different discount rates. If it had done so then the result might have been different. Davis (Select Committee, 1973b, pp. 84-85) commented: "One would also like to know, given that the discount rate is a very crucial decision, whether the Commission does in fact carry out sensitivity analyses to see what effect a 1% or 2% change in rates may mean to their figures." Again there was only a partial evaluation of the economic costs and benefits.

Hodgman (Committee of Enquiry, 1973b, p. 120) also pointed to the malleability of the costing figures: "It is further interesting to note that in my short time in the Parliament the cost of saving Lake Pedder has leapt from approximately 6.2 million dollars to a now astronomical 46 million dollars. This flexibility in the costs was also alluded to in a slightly different context by Vallance, President of the Tasmanian Conservation Trust (Committee of Enquiry, 1973b, p.159). Talking about a letter from the Premier to the Trust in defence of the project and against an alternative scheme proposed by the Trust, he identifies the selective use of costs with four important cost saving items (savings from illumination of Lake Edgar Dam, abandonment of Scotts Peak Dam, savings in reduction of timber and on costs of Lake Pedder Road) being excluded from the calculations. Vallance (Committee of Enquiry, 1973b, p.160) asserts that while these had been included in the THEC's initial assessment of its preferred option, they had been omitted in its evaluation of the Trust's proposed alternative, overstating its estimated cost by around $10M. Four major items had been omitted from the Huon Storage. In this case, the THEC appears to have deliberately changed its arguments. Similarly, in 1972 the THEC argued if the scheme was altered to save Lake Pedder, domestic consumers would suffer increased electricity costs, while previously in 1967 it had argued it "would not make a great difference to the domestic consumer" (St John, Committee of Enquiry, 1973b, p.158).

There was also concern that certain other financial aspects were ignored or were biased. There was, for example, millable timber in the Gordon storage that was lost when Lake Pedder was flooded (estimated at less than $50 million) which Payne (Assistant Commissioner for Forests) stated that as far as he was aware, "was not taken into account when the Hydro Electric Commission was making its plans." (Committee of Enquiry, 1973b, p.252). In addition, the THEC argued that the capitalised loss if the waters of the Huon were not diverted was $11 million. However, other estimates appeared to range from $2.5 million

to $6.2 million. It was concluded that: “Suffice it to say, in the circumstances, that the figure of $11 million appears to be an absolute maximum, on closer examination it may turn out to be much less.” (Committee of Enquiry 1973a, Annexure p.36).

McKenry (1972) also takes issue with selective information contained in the THEC’s media advertisements in 1972. One advertisement made reference to the cost of a tunnel diversion that would have created an even greater impact on the visual aesthetics of the region. The THEC claimed that this tunnel connecting the Gordon and the Serpentine catchments would have been the cheapest way to implement the Gordon River scheme. McKenry (1972, p. 25) argues that this was a misleading statement crafted to create the impression that the THEC rejected the tunnel on aesthetic grounds despite it being the supposedly cheapest option. He points out that the tunnel diversion appears to be the most economic option when only running costs alone are considered and running costs are relatively insignificant in such schemes. When the much more significant capital cost is included, the tunnel option was not financially viable and this information was known to the THEC and available in its files (McKenry, 1972, p. 25).

Finally, the THEC argued that one of the benefits of the new development was a new road into the formerly pristine forest. However, as Mosley (Committee of Enquiry, 1973b, p. 357) pointed out: “One matter on which the THEC particularly relies is the new road, driven from Maydena to Strathgordon by the THEC for the purpose of the new development. It is on the face of things a non sequitor to argue that one of the benefits of the new lake is a new road, but the THEC argues that its “$5 million cost was justified solely by projected power development in the area”. Indeed “… the fact is that the road was built with money provided as a special grant by the Australian Government without any commitment to go ahead with the power scheme, long before the latter was authorised by Parliament. And the power scheme was not the sole reason which had been advanced for the building of it.” (Committee of Enquiry 1973a, Annexure p. 51).

vii) Non-financial factors

As well as concerns about the misuse of financial costing through omission, bias and selectivity by the THEC, accounting was also implicated more broadly due to its inability to take into account environmental matters, both anthropocentric and non-anthropocentric. This can be seen as systematic selectivity in the matters which were considered. Typically in the environmental sphere "the vast majority of the biosphere is not covered by price (air, water, common land, habitat, species, ozone layer, etc" (Gray 1991, p.23). Nature is thus excluded from both accounting and economic calculations (eg Daly, 1980, 1985; Hines, 1991; Birkin, 1996, Jones, 2010; Freeman and Groom, 2013).

There was discussion, of the inability of conventional measurement systems to monetise heritage assets. It was put to one witness, Miss Dunn, that it might cost something between $10 and $30 million to save Lake Pedder and that the Sydney Opera House cost $100 million. There was also a general discussion of Ayres Rock and the Great Barrier Reef. Miss Dunn (Committee of Enquiry, 1973b, p, 182) replied: "Why do you keep asking me questions of money? I don't think cost comes into it. I know it is an impractical thing to say, of course it is, but if you relate it to the future and future generations - have we the right to deprive them of this?" Similarly, Skinner (Committee of Enquiry, 1973b, p. 216) thought it unhelpful to make comparisons to great masterpieces such as Picasso.

Environmental accountants and economists have acknowledged the exclusion of nature from business matters: "the traditional accounting paradigm with its narrow focus on accounting numbers does not capture the environmental consequences of organisational activity" (Jones 2010, p.132). In particular, Jones (2010) recognised the inadequacy of accounting for environmental decision-making. However, there has been little practical examination and reflection of the role of accounting in a setting such as the Lake Pedder Decision.

As well as criticism of the decision-making process and the financial evaluation of costs by those critical of the damming of Lake Pedder, there was a wealth of discussion of non-financial factors in favour of saving Lake Pedder. These can be broadly divided into anthropocentric and non-anthropocentric factors. Certainly, in the Lake Pedder case, there was concern over the narrow cost-orientated approach adopted by the THEC and its supporters.

None of the non-financial externalities were in any way monetised or specifically included in calculations. They are discussed below in eight non-financial groupings as identified by Holmes Rolston III's (1985): aesthetic, therapeutic, religious, historical value, recreational, educational, intrinsic value and genetic diversity. [4] This is followed by the minority of contributors to the Committee of Enquiry who argued in favour of the damming.

a) Aesthetic

Lake Pedder was much admired aesthetically. For Angus (Committee of Enquiry, 1973b, p. 2) it had an important "aesthetic and mystical value". Southwell (Committee of Enquiry, 1973b, p. 138) saw it as the equivalent to Ayres Rock. "I've seen both Ayres Rock and Pedder, and to me they certainly are comparable. You know they're both incredible places of tremendous beauty, fantastic colour changes and this sort of thing". Meanwhile Parr and Payne (Committee of Enquiry, 1973b, pp. 137 and 231) respectively termed it a "natural masterpiece" and "scenic".

There was a feeling among commentators of the fundamental importance of the wilderness concept. For Vaughan (Committee of Enquiry, 1973b, p. 279) "The original Lake Pedder is significant, precious and irreplaceable" while for Angus it was "truly unique" (Committee of Enquiry, 1973b, p. 2). Angus further commented that: "The fact that a price was put on 100 kilowatts of power is one thing but no price has ever been put on Lake Pedder as an asset" (Committee of Enquiry, 1973b, p. 8).

b) Therapeutic

At the public hearing, Keil, a psychologist, talked of the psychological value of wilderness, arguing that the untouched lake was capable of giving an intensity of experience that the new lake could not (Committee of Enquiry, 1973a, p. 33). For Vaughan (Committee of Enquiry, 1973b, p. 277) "Lake Pedder provided ideal conditions for fulfilment of many of man's most basic needs: security, dependence, freedom from fear and guilt, intellectual stimulation, physical challenge, emotional outlets, respect of others, self identification and love."

c) Religious

Skinner from the University of Tasmania's Geographic Society thought the "south west [of Tasmania]" to be unique from a "biogeographical" viewpoint" (Committee of Enquiry, 1973b, p. 216), believing it "very difficult to quantify a landscape". In Shoebridge's opinion

the existence and use of Lake Pedder enhanced the overall quality of living, stating that only now have we "recognised that quality of living has importance equal to if not greater than gross national productivity" (Committee of Enquiry, 1973b, p. 199). He considered this spiritual dimension to be important.

d) Historical value

Dunn and Bayley (Committee of Enquiry, 1973b) maintained that the present generation had no right to destroy Lake Pedder as it would deprive future generations of this natural feature. Interestingly, these arguments pre-dated the Brundtland Commission (1983) which advocated the responsibility which current generations have to sustain, maintain and enhance the quality of the environment so that it can be passed down to future generations.

e) Recreational

It was the "centrepiece aesthetically and also perhaps recreationally of the national park's attractions" (Brown, Committee of Enquiry, 1973b, p. 482). However, no attempt was made to assess the benefits. Swimming, canoeing, beach games, camping, sunbathing; interesting natural phenomena (such as the infamous "Pedder pennies", small rocks shaped like a penny), mountain climbing and exceptional photographic opportunities were identified as important recreational aspects of the old Lake Pedder (Committee of Enquiry, 1973a, p. 50) The Committee of Enquiry (1973a, p. 20 - 22) noted that Lake Pedder was a natural base camp for climbing a number of nearby mountains while Tarrant saw it as a Mecca for bush walkers.

The future value of tourism was also frequently mentioned. Donnelly believed that, in future, Tasmania would "need unique attractions such as Lake Pedder" (Committee of Enquiry, 1973b, p. 115). Williams made the point that: "If Lake Pedder was saved the amount of money that could be gained out of the tourists and people coming to see – well what the hell is all the fuss about" (Committee of Enquiry, 1973b, p. 472).

f) Educational

Many commentators (e.g. Desailly, Bardwell, Committee of Enquiry, 1973b, pp. 377-378) pointed to its educational value, for example for school camps, bushwalking excursions, interpretive programs and scientific fieldwork. It also provided a unique site for teaching

painting, photography, geomorphology, meteorology and biology (Committee of Enquiry, 1973b, p. 368).

g) Intrinsic Values/Genetic Diversity

Lake (Committee of Enquiry, 1973b, p. 35) who had surveyed the region pointed out that "the biological richness of the whole lake was very rich". Desailly (Committee of Enquiry, 1973b, p. 364) stressed the "unique flora and fauna" and continued "it is obvious that the alteration of the lake would disrupt the delicate balance between plants and animals and lead to the extinction of several of these species".

There was thus a range of commentators who on anthropocentric grounds (i.e. aesthetic, therapeutic, religious, historical, recreational and educational) and non-anthropocentric (intrinsic and genetic diversity) were totally against thedestruction of Lake Pedder. They believed that these environmental externalities should have been taken into account in the Lake Pedder Decision. Even if the appropriate discount rate had been used and the decision to flood Lake Pedder financial benefits had outweighed the financial costs, these commentators would have opposed the decision on environmental grounds

4.3 ***Arguments in Favour of Development***

Although overwhelmingly the commentators were against the flooding of Lake Pedder, several voices were publicly raised in favour apart from the THEC of Tasmania. Lynch (Committee of Enquiry, 1973b) representing the fishing industry thought that the introduction of brown trout into the new lake was a good development and would not harm local species. Kennedy, by contrast, was in favour of the hydro-electric proposals from the viewpoint of renewable energy supplies. "Most of the power used throughout the world is in fact, from fossil fuel, oil and coal and these are reported, I think correctly, is [sic] fast running out. Finally, Chisholm an Assembly member for Hobart (Committee of Enquiry, 1973b, pp. 458-460) felt that the decision had gone through due process and that "The people of Tasmania are heartily sick of the enquiry and sick of the name of Lake Pedder". He claimed that only around 50 people each year visited Pedder and that opening it up to more "has done a service to Australia and the Australian people".

5. Discussion and Conclusions

There are few environmental case studies that have highlighted the selective and biased use of financial costing in environmental infrastructure decisions and even less that have demonstrated how this accounting failed to take into account environmental matters. The Lake Pedder case study contributes to this limited literature.

Lake Pedder can be seen as an early example of an important clash between financial and environmental values. In the modern era, environmental considerations are perhaps more routinely incorporated into major strategic projects. In the Lake Pedder case, the environment was not taken into account. There was a selective focus on technical, legal and financial concerns. As Davis (1972, p.47) pointed out: "The Hydro-Electric Commission Act does list some requirements that have to be met when submitting any power development proposals, but this is a bare minimum of items and does not provide any comprehensive estimate of details or project options. It specifically excludes any mention of social and environmental factors and is couched in fiscal and technical terms". However, the Lake Pedder decision is particularly important in that it had long ranging economic, social and political consequences (Stratford, 2008).

Interestingly, there is still, nearly 50 years later, an active conservation movement focused on Lake Pedder. In particular, the restoration of the Lake. The Mercury, a local Tasmania paper quoted Tony Abbott as stating in 1995 that "Draining lake Pedder may be good politics as well as good sense" (Brown, 2014).

The Lake Pedder decision rehearsed financial, economic and other arguments, for perhaps the first time, which have nowadays become common in such diverse settings as the destruction of the Brazilian rainforest ,mining, the building of new airports and the damming of rivers and estuaries. Perhaps unusually, in the Lake Pedder case there was extensive archival evidence which documented the arguments. Accounting was shown not to be a neutral technology. It was used in selective and biased way. It appears to have been used to support a pro-building, Lake Pedder discourse around financial costs and alternative prices per unit of production. As such it is a good example of a technology that dominated and subjugated counter-narratives in decision-making. The ongoing debate in Tasmania and Australia on the issues surrounding the original decision and the proposals to restore the original Lake Pedder seem to confirm this view (e.g. Brown, 2014). The Lake Pedder Commission (2000) showed

that, in hindsight, the interest rate used by the THEC, and which was much criticised, had been massively overstated. There was a suspicion by commentators at the time that accounting was used in a selective and biased way.. This is in line with its role in political advocacy where accounting was seen to be selective and biased (e.g. Davidson, 1971; Davis, 1972; Richardson, 1987; Morgan, 1988).

Our article makes at least four major contributions to the accounting literature . First, it extends the impression management literature which is largely used in financial reporting (eg Beattie and Jones, 1992; Bowen et al, 2005; and Merkl-Davies et al, 2011) to the environmental accounting literature. It shows how financial costing can be used in a biased and selective way. Our case study did this through the use of archival data in an environmental, infrastructural case study. Such studies are rare in the accounting literature. Unlike the other case studies, the Lake Pedder case study is to a large extent based on the opinions of contemporaries that were collected as a result of a governmental enquiry.

Second, it contributes to those few studies such as Churchman (1971) on the closure of an airport, or Samiolo (2012) on flood protection in Venice that have investigated infrastructural decision-making. However, Lake Pedder is different in several ways. The lake Pedder decision should have been primarily concerned with environmental issues, particularly by a detailed consideration and debate of externalities such as biodiversity. Third, following on from this, the Lake Pedder case study is a rare example of a decision which demonstrates the exclusion of environmental externalities, such as aesthetic and natural assets. This contributes to the current debate on accounting for biodiversity (see, for example Jones and Solomon, 2013) by showing how such externalities are still typically excluded from the infrastructural decision-making process. Many environmental accountants and economists have argued that traditional accounting does not cover the environmental consequences of an organisation's activities. However, there has been a dearth of empirical evidence to back up these claims. Fourth, it adds to the literature on decision advocacy and impression management by providing a rare example of accounting's use in environmental decision-making. This thus complements prior research such as, for example, Arnold and Cooper (1999), Richardson (1987), Chwastiak (2008) and Cooper and Catchpole (2009) that has demonstrated accounting's selective and biased use in economiccost-benefit decisions in areas such as privatisation, mine closures and military spending. This thus extends the political advocacy

literature where accounting was seen to be selective and biased in social and political decision-making.

In the Lake Pedder case, the way accounting was used is reminiscent of impression management more widely involving the complete omission of data, the use of biased data and selective disclosures. First, that there was no general disclosure of the detailed costs and benefits. As such there was, and indeed could not be, an open and transparent debate about the actual operational incomes and expenses, cash flows or capital expenditure. Non-disclosure appeared to be a deliberate tactic used by the THEC. There was also no disclosure or informed discussion on the costs and benefits of alternatives to the flooding of Lake Pedder. Politically and financially, therefore, the decision was presented as a dichotomous one: either to build or not to build the dam. Again, the THEC did not want to open up the debate. Second, there appears to have been a biased use of a long-term discount rate with the aim of emphasising the financial benefits of building a dam at Lake Pedder. The particular discount rate chosen appeared to be deliberately selected to make the Lake Pedder Scheme more attractive over other alternatives. Hindsight appears to validate this view. Third, there was the selective use of costs and revenues to boost the THEC's argument. The costs and benefits were either enhanced or reduced depending on the underlying argumentations. In particular, accounting was used to build and reinforce the case for flooding Lake Pedder rather than being employed as a neutral and objective evaluation technique. If the costings had been done as the conservationists had argued then the accounting numbers used in financial costing would have saved Lake Pedder. Accounting was thus used as a strategic tool of impression management apparently to bolster the case for a political decision that had already been taken.

The Lake Pedder decision also illustrated the limitations of traditional accounting for financial costing in environmental decision-making. A whole range of environmental attributes such as aesthetic, therapeutic, religious, historical, recreational, educational and intrinsic value were excluded from the accounting calculations. There was thus selective consideration of only economic and legal concerns. Furthermore, the utilitarian benefits such as recreation, education, tourism, walking and timber were poorly reflected in monetary terms. There was no attempt to ascertain the full cost/sustainability of saving Lake Pedder (as was done in Landcare Research (Bebbington and Gray, 2001), City Farm (Lamberton, 2000), Australian forest management (Herbohn, 2005) by taking into account environmental

externalities. Externalities were thus not costed or monetised, and accounting and economic considerations also failed to take into account the intrinsic value of biodiversity. Therefore, the unique and irreplaceable nature of the Lake Pedder environment remained unpriced. What price the pedder galaxias, a unique feature of the natural environment?

It is interesting to compare the Lake Pedder case with a recent prior study of environmental decision-making in a major infrastructural project which adopted a cost-benefit approach. That is Samiolo's (2012) examination of the cost-benefit calculus of flood protection in Venice. There are similarities, but also differences. In Samiolo (2012) different accounting numbers and statistics were used to support a particular line of argument. There was thus demonstratable bias. However, in the Samiolo case, there was more obvious use of bias than in the Lake Pedder case. There was also a greater focus in the Venice case on social costs rather than on environmental concerns. In the Samiolo case, there was not such extensive reporting of contemporary views of omitted environmental externalities. However, in both cases, there was a notable absence of biodiversity costs.

The Lake Pedder case demonstrates both the selectivity and biased nature of traditional accounting and its limitations in dealing with environmental issues. It also raises two interesting questions. First, would Lake Pedder have been dammed if the calculations relating to the financial costing had been more accurate and if the environmental case had been taken into account? And second are we any further advanced in dealing with environmental costs and benefits?

The answer to the first question is obviously impossible to answer with any certainty. However, having studied the extant evidence the researchers have concluded that, on the balance of probability, the answer would probably have been 'NO'. Certainly, a higher and arguably more realistic discount of 9%, as vindicated by hindsight, would have saved Lake Pedder. The decision was a close one. The environmentalists had fought a strong campaign albeit without full and detailed information on either the costings or Lake Pedder's biodiversity. An alternative economic cost-benefit analysis of the Hydro-Electric scheme and the alternative schemes combined with a more appropriate discount role would have probably concluded that the Lake Pedder scheme would have been deemed uneconomic and an alternative, less environmentally damaging scheme may have been adopted. Indeed, the passage of time has indeed confirmed that the THEC's interest rate was unrealistically low.

The financial costing calculations alone, if done fairly could have saved Lake Pedder, even without accounting for externalities. However, if externalities had also been taken into account, the case was overwhelming.

Indeed, interestingly, looking back from the present century many of the arguments put forward by the THEC have proved to be wrong. The THEC now has massive debts as a result of building its hydro electric schemes. Indeed the Lake Pedder 2000 submission claimed that the Hydro-electric Commission of Tasmania not only caused the destruction of beautiful rivers and lakes and wilderness, but brought upon itself a financial disaster. The THEC was completely wrong in its forecasts of growth in demand by industry for electricity. The present oversupply of electricity in Tasmania is now so large that schemes completed since 1973 could be closed. In contrast, estimates of demand growth by conservationists were reasonably accurate", (Lake Pedder Submission, 2000, pp.13 – 17).

The answer to the second question is that we, unfortunately, seem to have advanced, but only a little in our abilities to account for the environment (see Jones 2010). A variety of research has been conducted into environmental valuation (see Milne, 1991, Parker, 1990, Peterson and Peterson, 1993, Pearce and Moran, 1994, Douai, 2009) and many methods have been suggested such as travel costs, random utility, hedonic pricing, avertive expenditure and contingent valuation of choice modelling (Nijkamp, Vindigni and Nunes, 2008). However, to date they do not seem to have been incorporated into environmental, infrastructural, decision-making.

There is, therefore, obviously still much work that needs to be done in this area. For until, we achieve a robust and workable method of incorporating environmental values into our strategic, and indeed into our operational decisions, then in the future we are likely to repeat the decisions of the past.

So are there any lessons from the Lake Pedder case that have contemporary relevance? The first is that, in cases of major environmental infrastructure projects, there needs to be full disclosure of accounting for costs and revenues, so that the ultimate decision is seen to be transparent. In particular, the key role of the discount rate needs to be appreciated and evaluated as it is obviously central to long term environmental decisions. This can be seen in environmental regulation (e.g. Driesen, 2006). More particularly, the key importance of

discount rates in long term environmental decision-making is demonstrated by Freeman and Groom (2013) who look specifically at biodiversity. Second, if we are to arrive at rounded decisions that balance social, economic and environmental considerations then one lesson that we must learn is to find a way to incorporate environmental costs and benefits into environmental infrastructural decisions. This may be through the monetisation of externalities. The third is that we need to evaluate the role and importance of natural capital. If we deem an environmental asset to be priceless either by designating it a heritage site or a national park, then it needs to be inviolable (see Jones 2003; Jones and Matthews 2000). It should, be protected by law so that, as was the case of Lake Pedder, once designated a national park, it should not be undesignated. If an area is worth protecting then it must be protected. This is as true of modern natural capital as it was of Lake Pedder.

There is a need for further research into the role accounting plays in major infrastructure decisions. To date, there are only a handful of published studies which have looked at accounting's role, most notably Samiolo (2012). This is somewhat surprising given the fact that finance, economy and nature are often found in conflict. The study of the way in which accounting as a technology is used when evaluating the viability of, for example, dams, mining or agricultural development projects would be useful. In particular, it would be useful to evaluate how the full environmental costs of a major infrastructural project could be determined.

Endnotes

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[1] Olegas Truchanas was an environmental activist who died on the Gordon River, Tasmania trying to protect the Lake Pedder area.

[2] Acknowledging the difficulties in establishing the feasibility of restoration in the short term, the Committee recommended a Commonwealth-funded moratorium on the development while investigations proceeded. It favoured an alternative funded scheme that would save Lake Pedder. This was rejected by the Tasmanian government and the scheme continued without alteration. Lake Pedder was lost.

[3] We are grateful to Rob Gray for alerting us to the Churchman (1971) and Rahaman, Lawrence and Roper (2004) cases.

[4] Holmes Rolston (1985) identifies, in total, 11 types of non-economic value carried by wildlands. The witnesses to the enquiry broadly discussed eight of these (we combined intrinsic value and genetic diversity). They did not mention life support, scientific or cultural symbolisation,

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Appendix 1: Timeline of Key Events in the Lake Pedder Decision

1953	THEC ground party installs flow meters on Gordon River.
1955	Lake Pedder declared a national park. THEC activity increases with surveyors, geologists and engineers flown into the Gordon River region.
1960	Track into the region constructed.
1961	THEC Commissioner declares development in the region in the foreseeable future to be remote
1962	The South-West Committee established to develop a coordinated plan for the development and conservation of Tasmania's south-west chaired by the Deputy President of the Legislative Council, Tasmanians parliamentary house of review, who recommends to the government that the entire south-west be declared a national park. Possible THEC scheme layouts for the Gordon area formulated by the THEC design office.
1963	THEC successfully obtains special grant of £2.5M from the Commonwealth Government to finance a road in to the Gordon River area.
1964	Road construction commences. Premier announces intention to form an Inter-Departmental Committee for the South-West of the State responsible for overseeing arrangements aimed at protecting the region from undue damage.
Early 1965	Detailed designs become available.
May 1965	The South-West Committee writes to Minister for Lands proposing that the Inter-Departmental Committee for the South-West of the State have representation from organisations interested in conservation.
June 1965	The Inter-Departmental Committee is formed comprising only the THEC Commissioner, the Surveyor-General and representatives of the Forestry Commission and the Mines Department.
June 1965	Premier of Tasmania issues a press statement indicating that there would be "some modification" to the Lake Pedder National Park.
June 1966	THEC-prepared case for special financial assistance for the Gordon River Project successfully submitted by the State Government to the Commonwealth Government (but this was not made public).
March 1967	UK firm endorses THEC's proposals.
April 1967	Inter-Departmental Committee endorses THEC's proposals.
May 1967	THEC's report tabled in Parliament.

AppendixOne (cont)

June 1967	Select Committee of Enquiry appointed by the Legislative Council in response to public concerns about the proposals. Premier introduces Bill to authorise expenditure of $116M on the THEC's proposals and another Bill giving the THEC temporary control of the entire south-west area. Both bills are passed and sent to the Legislative Council.
August 1967	Select Committee reports recommending, with regret over the loss of Lake Pedder, that the THEC's proposals be authorised Legislative Council passes the two Bills. Dam construction commences.
1971	Serpentine Dam nears completion and the flooding of lake Pedder is imminent. Environmental activism increases.
1972	Lake Pedder is flooded.
1973	Commonwealth Minister for the Environment appoints a Committee of Enquiry into the flooding of Lake Pedder. It recommends a moratorium on development to assess the feasibility of restoring Lake Pedder, with costs to be borne by the Commonwealth Government. This is rejected by Tasmania's Premier.

Source of data: McKenry (1972), Committee of Enquiry (1973a)